

Appl. No. 10/694,263
Reply to Office Action of June 7, 2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 - 5. (Cancelled)

6. (Currently Amended) A polishing method for polishing a metal film formed on a wafer surface having concave and convex patterns ~~so as to fill concave portions on said wafer surface~~, comprising:

a step of polishing said metal film by alternating an electropolishing, involving no mechanical polishing element, with a chemical mechanical polishing or chemical buffing involving no electropolishing element.

7. (Original) The polishing method according to claim 6, wherein said electropolishing is conducted to roughen said metal surface, and said chemical mechanical polishing or chemical buffing is conducted to smoothen said metal film surface roughened by said electropolishing.

8. (Original) The polishing method according to claim 6, wherein the electropolishing end point in a last electropolishing process among a plurality of electropolishing processes is determined by a change of a current waveform resulting from electropolishing said metal film.

9. (Original) The polishing method according to claim 8, wherein said electropolishing end point is found by differentiation of said change of the current waveform.

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Claims 10 – 11. (Cancelled)

12. (Previously Presented) A polishing method for polishing a metal film formed on a wafer surface having concave and convex ~~patterns so as to fill concave portions on said wafer surface~~, comprising:

a step of polishing said metal film by alternating an electropolishing, including no mechanical polishing element, with a chemical mechanical polishing or chemical buffing involving no electropolishing element.

13. (Previously Presented) The polishing method according to claim 12, wherein said electropolishing is conducted to roughen said metal surface, and said chemical mechanical polishing is conducted to smoothen said metal film surface roughed by said electropolishing.

14. (Previously Presented) The polishing method according to claim 12, wherein the electropolishing end point in a last electropolishing process among a plurality of electropolishing processes is determined by a change of a current waveform resulting from electropolishing said metal film.

15. (Previously Presented) The polishing method according to claim 14, wherein said electropolishing end point is found by differentiation of said change of the current waveform.

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16. (Currently Amended) A polishing method for polishing a metal film formed on a wafer surface having concave and convex ~~patterns so as to fill concave portions on said wafer surface~~, comprising:

a step of polishing said metal film by alternating an electropolishing, including no mechanical polishing element, with a chemical mechanical polishing or chemical buffing, involving no electropolishing element, there being at least two separate steps of electropolishing and two separate steps of chemical mechanical polishing or chemical buffing.

17. (Previously Presented) The polishing method according to claim 16, wherein said electropolishing is conducted to roughen said metal surface, and said chemical mechanical polishing is conducted to smoothen said metal film surface roughed by said electropolishing.

18. (Previously Presented) The polishing method according to claim 18, wherein the electropolishing end point in a last electropolishing process among a plurality of electropolishing processes is determined by a change of a current waveform resulting from electropolishing said metal film.

19. (Previously Presented) The polishing method according to claim 18, wherein said electropolishing end point is found by differentiation of said change of the current waveform.

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Please add the following new claims:

20. (New) The polishing method according to claim 8, wherein said electropolishing is continued past the determined electropolishing end point while reducing a current applied in said electropolishing until a current density in an electropolished surface reaches a predetermined current density or less.

21. (New) The polishing method according to claim 14, wherein said electropolishing is continued past the determined electropolishing end point while reducing a current applied in said electropolishing until a current density in an electropolished surface reaches a predetermined current density or less.

22. (New) The polishing method according to claim 18, wherein said electropolishing is continued past the determined electropolishing end point while reducing a current applied in said electropolishing until a current density in an electropolished surface reaches a predetermined current density or less.